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REFERENCE ANALYSIS IN BIOTIKA JOURNALS AS THE SCIENTIFIC LITERATURE IN THE BIOLOGY FIELD

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REFERENCE ANALYSIS IN BIOTIKA JOURNALS AS THE SCIENTIFIC LITERATURE IN THE BIOLOGY FIELD

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ABSTRACT
The quality of a scientific journal is determined by several standards. In Indonesia, one of the assessments of the quality of national journals uses the SINTA (Science and Technology Index) rating system. To obtain SINTA ranking results, it is necessary to match the contents of the journal with the assessment points contained in ARJUNA (National Journal Accreditation). Several points of assessment include primary and secondary reference ratios, the ratio of the reference source year, and the suitability of the article content with the focus and scope determined by each journal. Biotika is a Biology journal that is currently submitting for the accreditation process. This study aims to analyze several points of assessment in the Biotika. The method used in this research is a quantitative descriptive research. The results are that there is a development in the comparison of the number of literature that comes from primary sources is greater than secondary sources so that the increasing trend needs to be maintained. The number of comparisons between references with publication years which are more than 10 years is relatively higher than references with publication years which are less than 10 years. The topics of environmental biology and microbiology are the most common, while the topics of structural biology and function biology are relatively few compared to other topics, so a strategy is needed to attract the attention of researchers on these topics to submit articles to Biotika journals.
Keywords: Bibliometrics, Journals, References, Citations

INTRODUCTION

Research is both a spearhead and a root for an institution or institution in the academic realm to support the progress of the nation and state (Ibrahim, 2019). One indicator of scientific productivity that is widely used is the number of publications in scientific journals (Amelia & Rahmaida, 2017). Researchers have two main tasks, including conducting research through scientific procedures and communicating the results of their research in the form of activity reports and scientific papers (KTI) (Suryantini & Nurdiana, 2017).

The ups and downs of research products that can be created will affect the growth of scientific publications. Researchers as contributors to scientific papers determine the size of the development of knowledge that is documented in the literature (Himawanto, 2016). The number of scientific papers in Indonesia that have been indexed on index machines which have an international reputation is still far behind compared to several other neighboring countries in Southeast Asia, while the number of colleges or tertiary institutions in Indonesia is certainly far more appeal to these neighboring countries (Mathar, Akbar, & Bahar, 2017).

The main problems in the management of periodic scientific publications in Indonesia which have not been indexed by a reputable indexing machine are the visibility and accessibility of scientific periodicals which are not yet good because they have not implemented the management of scientific periodicals by using the online method; b. the process of managing scientific writing has not applied scientific standards; c. the quality of the publication of scientific periodicals, for the most part, is still not good; d. quality control of scientific periodicals through a review process by Bebestari partners and the establishment of environmental styles are not consistent; e. the quality of the substance of the articles

has not been well maintained and maintained (Kementerian Pendidikan dan Kebudayaan, 2014). This problem is faced by the Biotika Journal, a journal that publishes research articles in the Biology field.

Biotika is one of the 78 online journals managed by Universitas Padjadjaran Indonesia. This journal is also the only journal with the field of Biology at the university. If you look at the data displayed on http://jurnal.unpad.ac.id/biotika, this journal has 18 volumes, which means it has entered its 18th year of publication. However, so far, the journal has not been listed in the list of journals that have a Sinta accreditation rating. Journals that have a Sinta accreditation rating can be seen on the website http://sinta.ristekbrin.go.id/journals?q=biotika&search=1&sinta=&pub=&city=&issn=. Nevertheless, this journal has been listed on the ARJUNA page and is currently registering for SINTA accreditation, as can be reviewed at http://arjuna.ristekdikti.go.id/.

ARJUNA (National Journal Accreditation) is an objective means/system to measure the minimum quality requirements whether a scientific periodical can be given national accreditation recognition and can then be followed up by indexing it to an indexer with an international reputation. Meanwhile, SINTA (Science and Technology Index) is a portal containing the measurement of the performance of Science and Technology which includes the performance of researchers, writers, authors, journal performance, and the performance of science and technology institutions, which are managed by the Ministry of Research, Technology and Higher Education., under Presidential Decree No. 13 of 2015. Now the Ministry of Research, Technology, and Higher Education has changed its name to the Ministry of Research and Technology / National Research and Innovation Agency of the Republic of Indonesia. Meanwhile, the management of higher education is again under the Ministry of Education and Culture.

One of the reasons for not obtaining Sinta accreditation by national journals is due to the lack of author awareness to fulfill several article requirements. Several article requirements that must be met by the author are listed in the author guidelines on the website of every journal. One of the requirements that are often not fulfilled by authors is the composition of the reference consisting of primary and secondary sources, as well as the reference year cited. Besides, there is also an uneven distribution of topics in several journals in terms of focus and scope.

Therefore, this research aims to obtain an overview of the comparison of the reference of primary and secondary sources, the references comparison from sources with publication years that are more and less than 10 years, and the distribution of article topics in the last six editions of the Biotika journal. The reason for choosing the Biotika journal as a Biology journal that has had a long journey in publishing is because this journal has been published for more than 10 years and is applying for Sinta's accreditation. Meanwhile, the reason for taking 6 editions to be analyzed is because the editions to be reviewed by journal assessors are at least the last 4 editions.

METHOD

This research is research conducted using qualitative descriptive research methods. For research that analyzes the literature, several analytical techniques can be used by researchers. Among others are Bibliometrics and scientometric analysis. Bibliometrics is an activity to measure and analyze literature with a mathematical and statistical approach (Kartika, Ginting, & Haryanti, 2015). Meanwhile, scientometric analysis is a quantitative method related to measuring the dissemination of scientific information (Amelia & Rahmaida, 2017). As for Biology, there is an analytical technique known as Bioinformatics. Bioinformatics is concerned with developing tools and approaches for obtaining, organizing, storing, retrieving, visualizing, and analyzing biological data. Bioinformatics techniques are used to gain useful insights from data generated in various fields of biological science research (Molatudi, Molotja, & Pouris, 2009).

Bibliometrics are divided into two groups. The first group is the publication distribution. This group is a quantitative analysis of the literature characterized by the emergence of three basic bibliometric laws, namely: (a) calculates the productivity distribution of various authors; (b) describing documents (usually magazines) in a particular discipline; and (c) ranks words and frequencies in the literature used in indexing articles. The second group is citation analysis. Basuki (2002) said, Citation

analysis is an indicator of bibliometric studies. Bibliometric indicators are used for several purposes, most of which are to measure the output of science and technology activities (research, services, and education) (Tupan & Rachmawati, 2017).

However, the purpose of this study is to identify the distribution of the research topic, the characteristics of the reference sources used, and the obsolescence of information that is used as a reference by the author. Similar research has been conducted in researching the 2012-2016 of Hayati Journal (Rahayu & Saleh, 2017). So the technique used in this study is citation analysis to obtain a comparison of references from primary and secondary sources, a comparison of references from sources with publication years that are more and less than 10 years. The data collection technique was carried out by tracing the reference sources contained in the bibliography section of each article in the last six editions of the Biotika journal. As for identifying the distribution of article topics, the search technique uses keyword analysis. This refers to the statement that research topics were identified through keyword analysis (Prieto-Gutiérrez & Segado-Boj, 2019).

RESULTS AND DISCUSSION

The journal is an indicator of the development of literature in various fields of science. Journals are the main channel for transmitting knowledge (Abdi, Idris, Alguliyev, & Aliguliyev, 2018). Evaluating the quality of scientific journals is a tough task (Ranjan, 2017). Several studies have been conducted by several researchers with the object of study in the form of research results published in several journals or indexing institutions, including research that analyzes the topic and the use of methods in articles in the fields of economics, finance, and business journals (Camargo, González, Guzmán, ter Horst, & Trujillo, 2018), Analysis of research results in the field of Telomere Length in Children (Valera-gran et al., 2020). Publication analysis refers to the collaboration of authors in a published article, with the results stating that the US and Japan are countries with a high level of collaboration (He, Zhang, & Teng, 2005).

The term bibliometric is usually used for the quantitative analysis of publications of any individual, institution, or discipline (Kousar & Mahmood, 2010). This means that a bibliometric study can be carried out to quantitatively analyze the information contained in a publication media, such as a scientific journal. Therefore, it is not surprising that there is a publication analysis that refers to one journal (Wan, Anyi, Zainab, & Anuar, 2009). When a journal is studied bibliometrically, it generates a portrait of the journal, which provides descriptions and offers new insights (Wan et al., 2009). As was done by this research.

Meanwhile, a similar type of research was also carried out by several Indonesian researchers, such as the development trend in instrumentation research (Tupan, Rahayu, Rachmawati, & Rahayu, 2018). In the field of biology, among others, the Collaboration of Researchers in the Field of Biotechnology (Suryantini & Nurdiana, 2017), Distribution of Research Topics in the Journal of Biology (Rahayu & Saleh, 2017).

Especially for the branch of microbiology, it is stated that a bibliometric analysis of microbiology both in developed and developing countries is rare, one of the evidence is also mentioned that Sub-Saharan Africa contributed very little towards (less than 2%) the worlds microbiology literature (Singh, 2018). Therefore, it is hoped that this research can increase the number of literature related to the analysis of research results published in several published media in the field of Biology. One of the results that can be presented in this research is the comparison of the number of references in the categories of primary and secondary sources, which are listed by the author in the bibliography section.

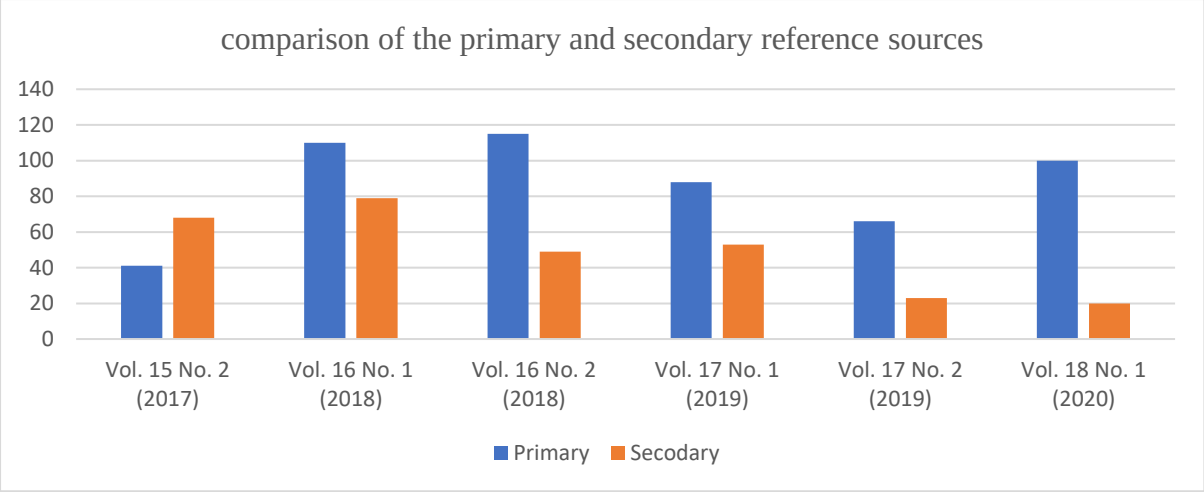

Fig 1. The comparison of the primary and secondary reference sources

Based on the data in fig 1, it is known that the comparison of the number of literature originating from primary sources is greater than secondary sources, except for the initial edition, namely the Vol. 15 No. 2 (2017). The trend of increasing the number of comparisons between primary and secondary reference sources shows a positive symptom. This is because one of the elements of the assessment of Sinta's accredited journal includes the aspect of the ratio of the number of primary literature sources compared to the number of other sources.

The ratio of the number of primary literature sources to the number of other sources determines the weight of the thoughts and ideas that are used as a writing framework. The more the number of primary references that are referred to, the more quality the writing will be (Kementerian Pendidikan dan Kebudayaan, 2014). The character of literature refers to statements and restrictions that primary literature contains original research results, studies of a new theory, explanations of ideas in all fields, for example, journal articles, proceedings, theses, dissertations, reports. Secondary literature contains information that is in the primary literature, for example, books, potpourri. Meanwhile, tertiary literature contains information on instructions for obtaining primary and secondary literature, for example, abstracts, indexes, encyclopedias, dictionaries (Lukman, 2016).

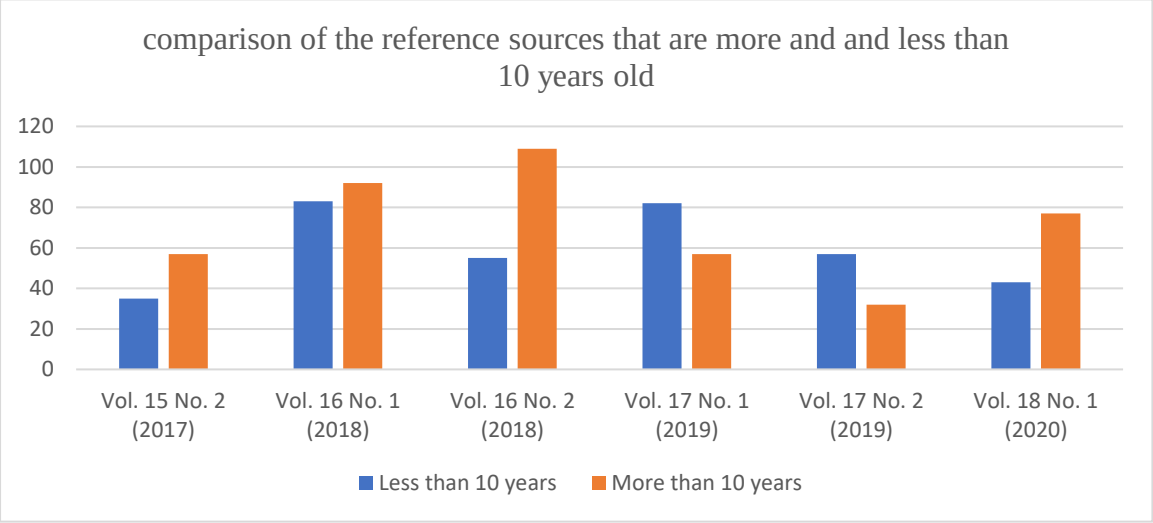

Fig 2. The comparison of the reference sources that are more and and less than 10 years old

Another data shown in fig 2 is a comparison of different reference sources in terms of the year of publication. Based on the literature, it is stated that to make a good publication, one must refer to scientific references. References are needed to know the recency and originality of the research to be

carried out ... Good references come from primary literature sources, namely journal articles, and proceeding papers. It is better to choose one that has novelty for at least the last 10 years (Lukman, 2016).

Determination of reference should be chosen which has recency of at least the last 10 years depends on a particular field of science, because there is a consideration of the latest literature material in certain fields which is relatively not much updating. As stated in the following statement: the degree of updating of material referred to in terms of the proportion of publications of the last 10 years (except for certain areas that are not much reformed such as law, taxonomy, and archeology) is a measure of the quality of important scientific periodicals. Relevant classic works can be a reference from the source of the problem but not for discussion comparison (Kementerian Pendidikan dan Kebudayaan, 2014).

Therefore, the reference age limit in scientific articles in the field of Biology still refers to a 10 years period. In fig 2, it is known that the number of comparisons between references with publication years that are more than 10 years is relatively equal with references with publication years that are less than 10 years.Therefore, more effort is needed from the journal manager to be able to urge the author to pay more attention to the publication year of the source he cites to show the novelty aspect of the references used.

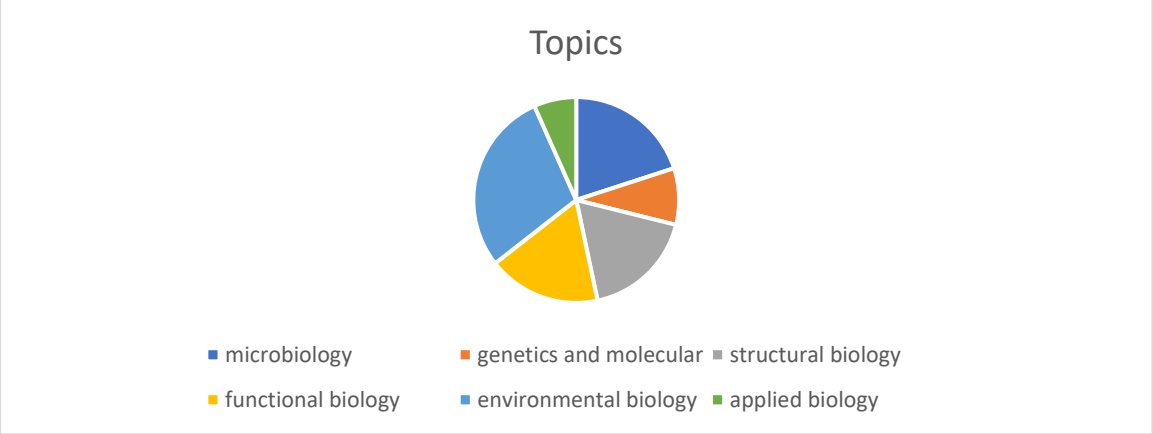

Fig 3. The comparison of the Subject

The topic referred to in fig 3 is the scope of the scientific field. The scientific coverage of scientific periodicals is a very important indicator of substance quality. The scientific coverage of a scientific periodical that is more specific, the higher the value will be (Kementerian Pendidikan dan Kebudayaan, 2014). The principle of a division in biology can be made on objects and aspects (Frandsen, 2009). However, in its current development, scientific topics or domains are often interdisciplinary, resulting in significant overlap in various fields of science and studies, such as mathematics, physics, and even biology (Fiala & Tutoky, 2017). This results in differences in the division of topics, subjects, or fields of study in each journal.

For example, the Biotika Journal divides article topics into 6 categories, namely: microbiology, genetics and molecular, structural biology, functional biology, environmental biology, and applied biology. In fig 3 it is known that the topics of environmental biology and microbiology are the most topics in articles published in the journal Biotika. Meanwhile, molecular biology is the subject of most articles published in the AgroBiogen Journal, followed by the subject of cell and tissue biology (26.61%), genetic resource management (16.13%), and biochemistry (4.03%) (Suryantini & Nurdiana, 2017). The articles published in the Biological Journal include the branches of biodiversity, biosystematics, ecology, physiology, behavior, genetics, and biotechnology. In this study, the branch of the science of the most published articles is physiology (Rahayu & Saleh, 2017). If you look at the distribution of topics in the Biotika journal, the topics of structural biology and functional biology are relatively few compared to other topics, so it is necessary for the enrichment and deepening of the

material through several subjects (Prastowo, Dewi, Hafiar, & Anisa, 2020), agar sebaran topik lebih merata.

Regardless of the differences in the distribution and distribution of topics in each journal, which is more important to note by the author is the consistency in making citations and compiling a bibliography. Therefore, authors should be encouraged to increase their knowledge of citation techniques in scientific papers, by learning more by looking at examples, complying with writing guidelines, and following revision instructions (Hafiar, Setianti, Damayanti, Nugraha, & Anisa, 2019). This is important so that the author can comply with the provisions of publication so that they can publish articles that comply with minimum standards (Marta et al., 2019). The author's compliance with the author's guidelines is expected to improve the quality of journals during the accreditation process.

CONCLUSIONS

The comparison of the number of literature originating from primary sources is greater when compared to secondary sources so that the trend of increasing the number of comparisons between primary and secondary reference sources shows a positive symptom, and it is necessary to maintain consistency by directing the author to constantly update the references to be in their location. The number of comparisons between references with publication years that are more than 10 years is relatively greater than those of references with publication years that are less than 10 years, except for a few editions. Therefore, more effort is needed from the journal manager to be able to urge the author to pay more attention to the publication year of the source he cites to show the recency aspect of the references used.

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